# Recent Hypertension Guidelines

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Disclosures: Member of Panel Appointed to the Eighth Joint National Committee (JNC 8)

The Million Heart Campaign is building on the accelerating progress of the last twenty years

*"Getting warm. . .warmer."*

# "Getting warm …. warmer."

SPRINT
Systolic Blood Pressure Intervention Trial

National Heart Lung and Blood Institute
NIDDK National Institute of Diabetes and Digestive and Kidney Diseases
National Institute on Aging

# "Avoidable" Deaths from Heart Disease, Stroke, and Hypertensive Disease – United States, 2001 – 2010

September 6, 2013

- Look at CVD mortality for those < 75 years old.
- Nearly one fourth of all CVD death avoidable.
- 56% of the avoidable deaths in those < 65 (important target for primary prevention).
- Some of these 'avoidable' deaths are likely due to lack of preventive health care or timely and effective medical care.

# Number of Avoidable Deaths from CVD – United States, 2001 -2010

| Age Groups | CVD Deaths in 2001 | CVD Deaths in 2010 | Percent Decline in Death Rate ($p < .05$) |
|---|---|---|---|
| 35-54 | 46,426 | 43,884 | **-6%** |
| 55-64 | 61,105 | 65,680 | **-27%** |
| 65-74 | 117,662 | 87,741 | **-37%** |

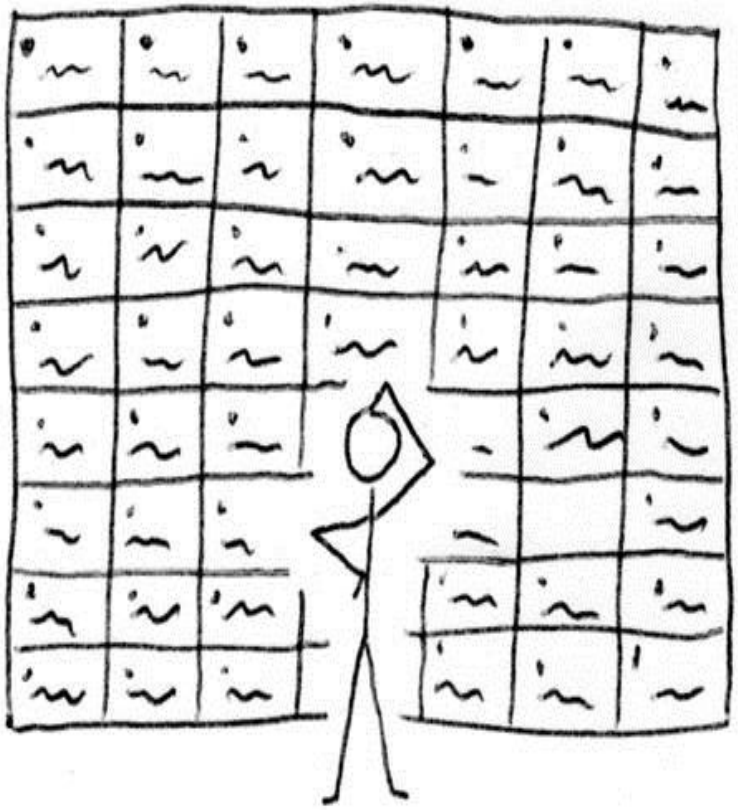
MMWR 9/26/2013

Schieb LJ

# Rates of Avoidable Deaths Data Illustrates Murray's Eight Americas: New perspectives on U.S. health disparities

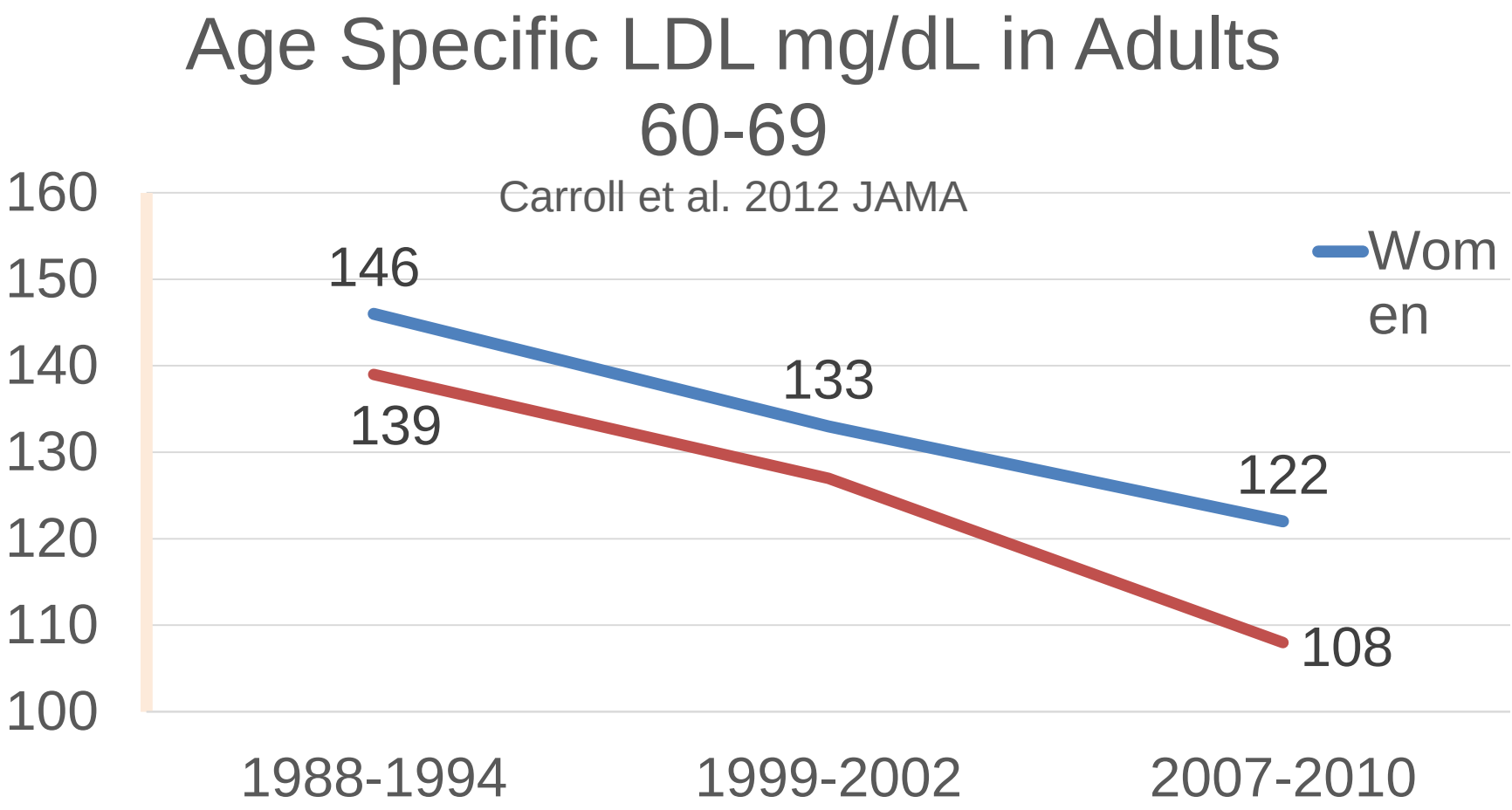
| Race/Ethnicity and sex | 2001 Rates per 100,000 | 2010 (% Decline over 10 years $p < .05$) Asian men 47 |
|---|---|---|
| Asian Females | 36 | 22 (-39%) |
| White Men | 112 | 81 (-28%) |
| Hispanic Men | 93 | 63 (-28%) |
| Black Men | 200 | 143 (-28%) |

# Disentangling Complexity is Challenging – Why did CVD decrease and how can we make additional progress?

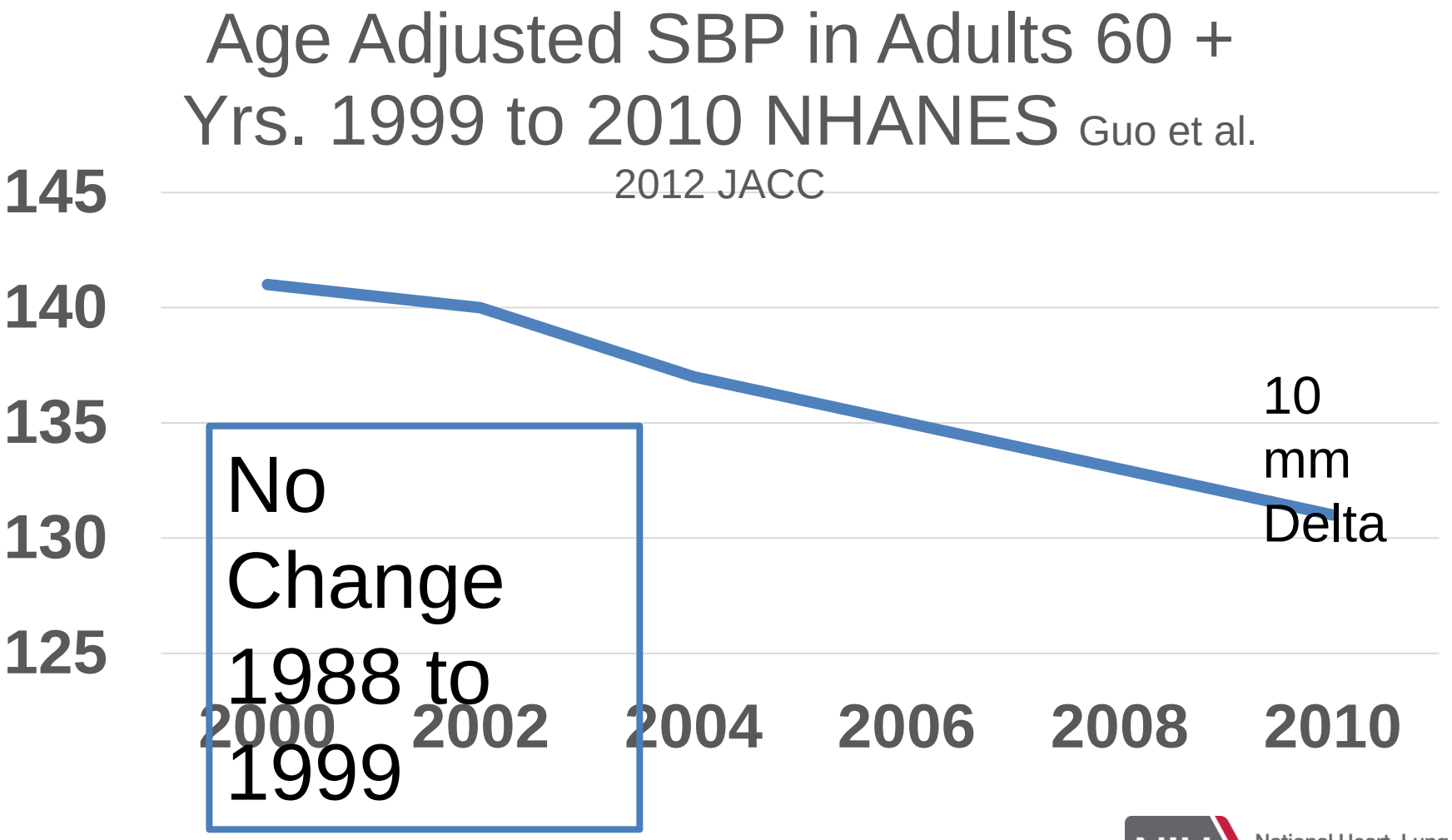


http://www.smallmanart.com/2012/07/05/disentangling-complexity.html - © Stefano Masini 2012

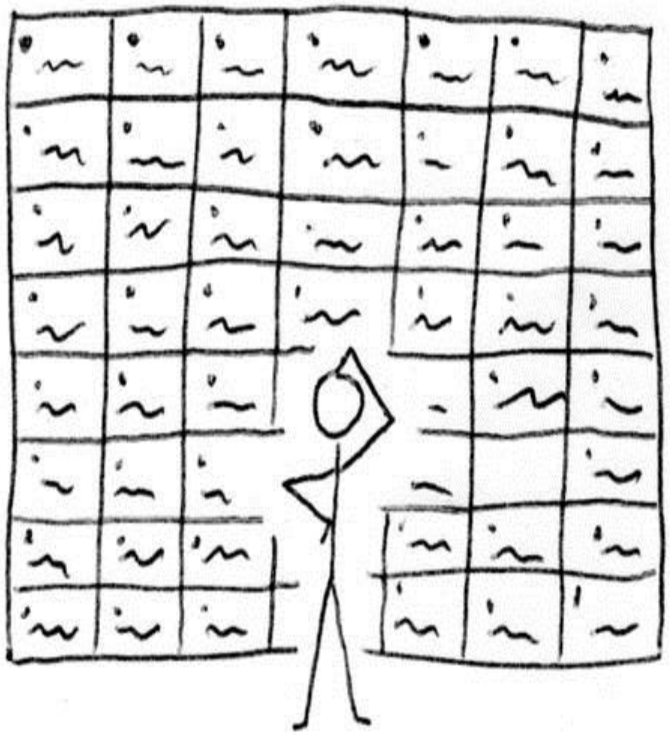
# A Partial Answer: Trends in LDL 1988-2010



# Another Contributor with a Different Secular Pattern



# Disentangling Complexity is Challenging – Many new guidelines?



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# Four New Guidelines

- 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults: Report from the Panel Members Appointed to the Eighth Joint National Committee (JNC 8)
- American Society of Hypertension and the International Society of Hypertension Clinical Practice Guidelines for the Management of Hypertension in the Community
- 2013 European Society of Hypertension/European Society of Cardiology Guidelines

# Four New Guidelines

- Each set of these guidelines was independently developed. They used different methodologies and criteria for reaching their conclusions and varied in how comprehensive their recommendations were.
- All acknowledged that many key questions remained unanswered and called for greater research.

# Systolic Blood Pressure Treatment Goals and Thresholds

- Areas of agreement - 140/90 for both goal and threshold
  - Individuals younger than 60
  - Individuals with diabetes
  - Individuals with chronic kidney disease (CKD) without significant proteinuria

# The JAMA Report in December 2013

- **2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8)**

  Paul A. James, MD[1]; Suzanne Oparil, MD[2]; Barry L. Carter, PharmD[1]; William C. Cushman, MD[3]; Cheryl Dennison-Himmelfarb, RN, ANP, PhD[4]; Joel Handler, MD[5]; Daniel T. Lackland, DrPH[6]; Michael L. LeFevre, MD, MSPH[7]; Thomas D. MacKenzie, MD, MSPH[8]; Olugbenga Ogedegbe, MD, MPH, MS[9]; Sidney C. Smith Jr, MD[10]; Laura P. Svetkey, MD, MHS[11]; Sandra J. Taler, MD[12]; Raymond R. Townsend, MD[13]; Jackson T. Wright Jr, MD, PhD[14]; Andrew S. Narva, MD[15]; Eduardo Ortiz, MD, MPH[16,17]

# 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults: Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8)

Table 6. Guideline Comparisons of Goal BP and Initial Drug Therapy for Adults With Hypertension

| Guideline | Population | Goal BP, mm Hg | Initial Drug Treatment Options |
|---|---|---|---|
| 2014 Hypertension guideline | General ≥60 y | <150/90 | Nonblack: thiazide-type diuretic, ACEI, ARB, or CCB; black: thiazide-type diuretic or CCB |
| | General <60 y | <140/90 | |
| | Diabetes | <140/90 | Thiazide-type diuretic, ACEI, ARB, or CCB |
| | CKD | <140/90 | ACEI or ARB |

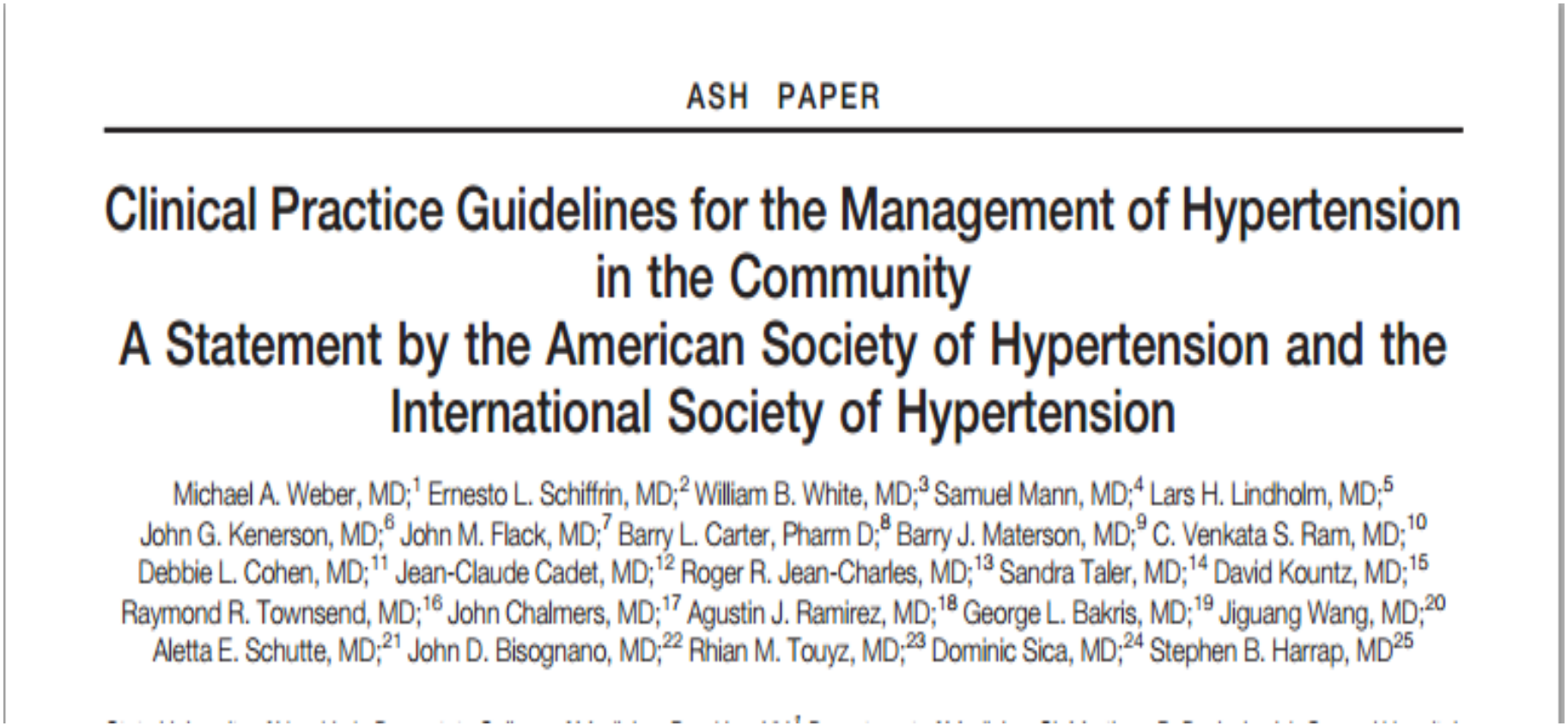
Guideline Goal BP and Initial Drug Therapy for Adults With Hypertension

JAMA. 2014;311(5):507-520. doi:10.1001/jama.2013.284427

# Recommendation One: The Corollary Recommendation

- **Corollary Recommendation - …** if pharmacologic treatment for high BP results in lower achieved SBP (e.g., <140 mm Hg) and treatment is well tolerated and without adverse effects on health or quality of life, treatment does not need to be adjusted. (Expert Opinion – Grade E)

# Other Views



ASH PAPER

## Clinical Practice Guidelines for the Management of Hypertension in the Community
## A Statement by the American Society of Hypertension and the International Society of Hypertension

Michael A. Weber, MD;[1] Ernesto L. Schiffrin, MD;[2] William B. White, MD;[3] Samuel Mann, MD;[4] Lars H. Lindholm, MD;[5] John G. Kenerson, MD;[6] John M. Flack, MD;[7] Barry L. Carter, Pharm D;[8] Barry J. Materson, MD;[9] C. Venkata S. Ram, MD;[10] Debbie L. Cohen, MD;[11] Jean-Claude Cadet, MD;[12] Roger R. Jean-Charles, MD;[13] Sandra Taler, MD;[14] David Kountz, MD;[15] Raymond R. Townsend, MD;[16] John Chalmers, MD;[17] Agustin J. Ramirez, MD;[18] George L. Bakris, MD;[19] Jiguang Wang, MD;[20] Aletta E. Schutte, MD;[21] John D. Bisognano, MD;[22] Rhian M. Touyz, MD;[23] Dominic Sica, MD;[24] Stephen B. Harrap, MD[25]

http://www.ash- us.org/documents/ASH_ISH-Guidelines_2013.pdf

# Where ASH and the JAMA JNC Paper Agreed

- “The treatment goal for systolic blood pressure is usually <140 mm Hg and for diastolic blood pressure <90 mm Hg. In the past, guidelines have recommended treatment values of <130/80 mm Hg for patients with diabetes, chronic kidney disease, and coronary artery disease. However, evidence to support this lower target in patients with these conditions is lacking…”

http://www.ash-us.org/documents/ASH_ISH-guidelines_2013.pdf

# Where Do ASH and the JAMA JNC 8 Diverge on SBP Thresholds and Goals?

- For patients older than 80 years, the suggested threshold for starting treatment is at levels ≥150/90 mm Hg. Thus, the target of treatment should be <140/90 mm Hg for most patients but <150/90 mm Hg for older patients (unless these patients have chronic kidney disease or diabetes, when <140/90 mm Hg can be considered).

http://www.ash- us.org/documents/ASH_ISH-Guidelines_2013.pdf

# Treatment Goals and Thresholds in Older Individuals

- Biggest area of diversion is between 60 and 79 years old.
- There is more general agreement for those individuals 80 years old and older, particularly if they are fragile, that the treatment goal should be 150/90 rather than 140/90.
  - This includes the expert opinion that if an individual is doing well on treatment there is no compelling reason to reduce the intensity of treatment at a specific age.
- Other guidelines (Canadian, UK and ESH/ESC) all support the 150/90 goal for those 80 years old and older.

# Initial Drug Choices – General Population and Diabetes

## JNC 8 Panel

- Nonblack: Thiazide-type diuretic, ACEI, ARB, or CCB
- Black Patients - Thiazide-type diuretic, or CCB
- Patients with Diabetes: Thiazide-type diuretic, ACEI, ARB, or CCB
- Both agree on ACEI and ARB for CKD patients

## ASH

- Nonblack and ≥ **60**: Thiazide diuretic, or CCB (ACEI or ARB also ok)
- Nonblack and < **60**: ACEI or ARB
- Black Patients: Thiazide-type diuretic, or CCB
- Patients with Diabetes: ACEI or ARB (in Blacks: Thiazide and CCB also ok)

# Minority View from JNC 8 Panel Members on Only One Recommendation

Annals of Internal Medicine | Special Article

Evidence Supporting a Systolic Blood Pressure Goal of Less Than 150 mm Hg in Patients Aged 60 Years or Older: The Minority View

Jackson T. Wright Jr., MD, PhD; Lawrence J. Fine, MD, DrPH; Daniel T. Lackland, PhD; Gbenga Ogedegbe, MD, MPH, MS; and Cheryl R. Dennison Himmelfarb, PhD, RN, ANP

- Wright was frank: "This article is not intended as an attack on the 2014 hypertension guidelines. . . . The purpose of this *Annals* commentary was to clarify the rationale behind the defense of keeping the 140 mm Hg target, rather than raising it to 150 mm Hg."
- Lot of dialogue and mutual respect on the Panel.

# Differing Perspectives on Whether There Was Evidence of Benefits

## Majority Perspective

- HYVET, Syst-Eur and SHEP showed benefit but had average SBP in the active arm of between 143 and 150 mm Hg.
- Only two other goal trials (JATOS and VALISH), while having limitations, provided no evidence of benefit of 145 vs. 135 mm Hg.

## Minority Perspective

- Evidence from trials and observational studies that the panel did not use as part of its review supports the lower goal, especially in high-risk patients.
- Two large meta-analyses supported the < 140 mm Hg goal.
- Inconsistency on lower goal ok for diabetes but not other high risk groups.

# These Differing Perspectives Were Reflected within the Appointed JNC 8 Panel

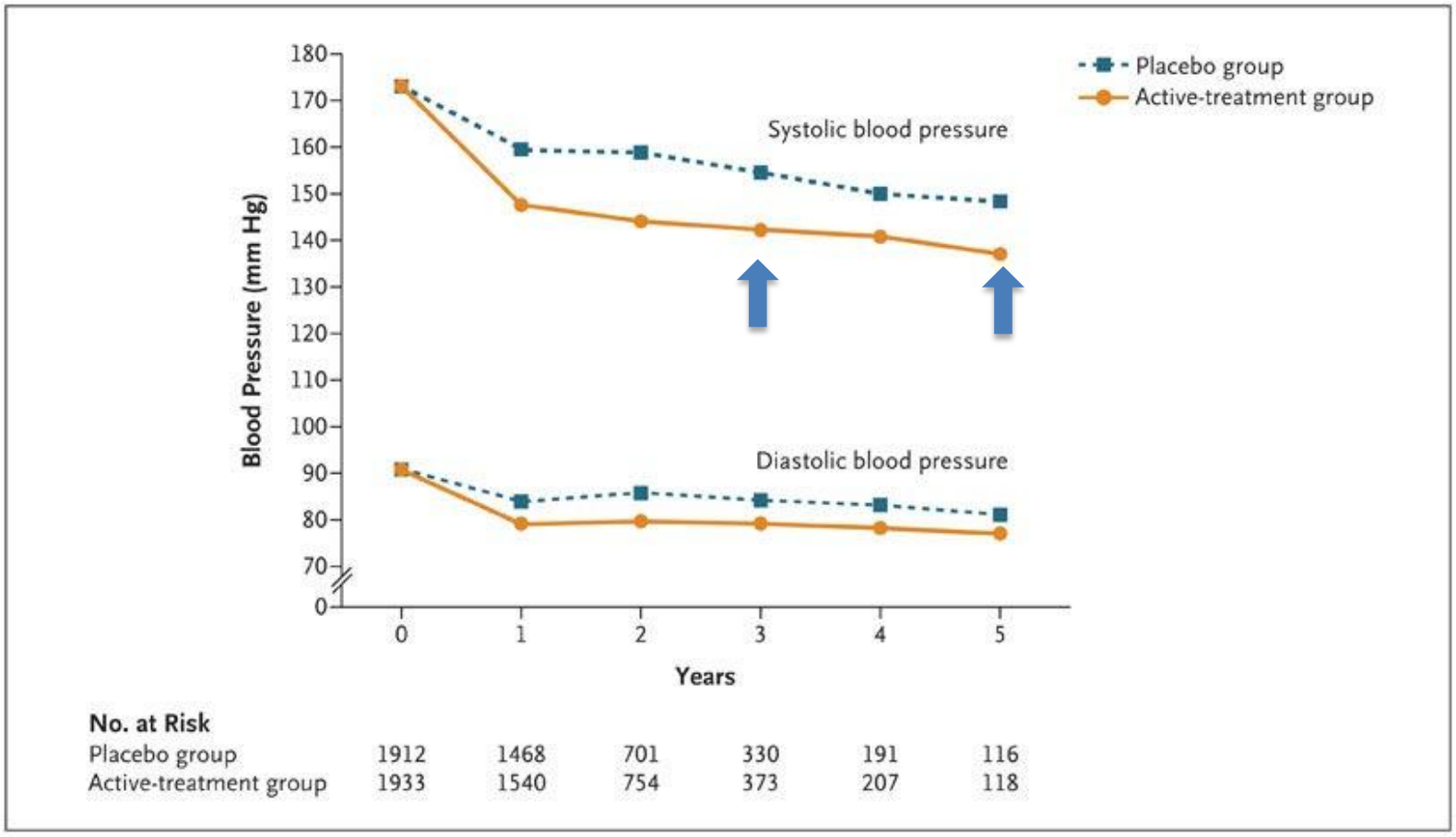
## Majority Perspective

- “No. 1, it's going to simplify the goals (of treatment because) there are only two goals to remember. No. 2, I do think a lot of physicians who take care of the elderly have been concerned over the years about the potential for causing harm by overtreating blood pressure." It's certainly not uncommon for elderly patients to become dizzy on standing because of the antihypertensive medication or medications they take. Such patients, James noted, are at an increased risk for falls and their sequelae.”

## Minority Perspective

- What is the trial evidence of increase risk of serious adverse events with treatment to < 140 mm Hg.
- JATOS, VALISH, and SPS3 all concluded that the lower goal was safe.

# HYVET - Blood Pressure, Measured by Study Group



# Main Fatal and Nonfatal End Points

**Table 2. Main Fatal and Nonfatal End Points in the Intention-to-Treat Population.**

| End Point | Rate per 1000 Patient-Yr (No. of Events) | | Unadjusted Hazard Ratio (95% CI) | P Value |
|---|---|---|---|---|
| | Active | Placebo | | |
| | *no. (%)* | | | |
| Stroke | | | | |
| Fatal or nonfatal | 12.4 (51) | 17.7 (69) | 0.70 (0.49–1.01) | 0.06 |
| Death from stroke | 6.5 (27) | 10.7 (42) | 0.61 (0.38–0.99) | 0.046 |
| Death | | | | |
| From any cause | 47.2 (196) | 59.6 (235) | 0.79 (0.65–0.95) | 0.02 |
| From noncardiovascular or unknown causes | 23.4 (97) | 28.9 (114) | 0.81 (0.62–1.06) | 0.12 |
| From cardiovascular cause | 23.9 (99) | 30.7 (121) | 0.77 (0.60–1.01) | 0.06 |
| From cardiac cause* | 6.0 (25) | 8.4 (33) | 0.71 (0.42–1.19) | 0.19 |
| From heart failure | 1.5 (6) | 3.0 (12) | 0.48 (0.18–1.28) | 0.14 |
| Fatal or nonfatal | | | | |
| Any myocardial infarction | 2.2 (9) | 3.1 (12) | 0.72 (0.30–1.70) | 0.45 |
| Any heart failure | 5.3 (22) | 14.8 (57) | 0.36 (0.22–0.58) | <0.001 |
| Any cardiovascular event† | 33.7 (138) | 50.6 (193) | 0.66 (0.53–0.82) | <0.001 |

* Death from cardiac causes was defined as fatal myocardial infarction, fatal heart failure, and sudden death.
† Any cardiovascular event was defined as death from cardiovascular causes or stroke, myocardial infarction, or heart failure.

# One of the Reasons for Differing Conclusions

**Table 2 Trials Comparing SBP < 140 mmHg vs. Higher SBP Goal**

| Trial (n) | Total Endpts | Composite CVD | Stroke |
|---|---|---|---|
| JATOS(21) (n=4,418) | N= 172 | Rate per 1000 py: 22.6 vs 22.7 P=0.99 | Rate per 1000 py: 13.7 vs. 12.9 P=0.77 |
| VALISH(17) (N = 3,260) | N= 99 | HR: 0.89 p = 0.383 | HR: 0.68 p = 0.237 |
| FEVER(16) | N = 575 | HR: 0.73 | HR: 0.73 |

# Possible Consequences of the Higher Goal

- Increasing the systolic BP target in those 60 years or older will have the effect of reducing the intensity of antihypertensive treatment among patients already being treated, among them a large population with established CVD or at high risk for CVD (including African Americans and patients with multiple CVD risk factors other than chronic kidney disease).
- Raising the target may have the unintended effect of reversing decades of declining CVD rates, especially stroke mortality.

# US CVD Death Rates for Individuals < and > than 65 years

| Condition (Cause of death by underlying Cause) | Age < 65 or ≥ 65 years | 1999-2010 Yearly Average Death Rate per 100,000 | 1989-1998 Average annual % change in age-adjusted death rates | 1999-2010 Average annual % change in age-adjusted death rates |
|---|---|---|---|---|
| Coronary Disease | < 65 | 30 | -3.6 | -3.4 |
| Coronary Disease | ≥ 65 | 1038 | -2.7 | -5.6 |
| Stroke | < 65 | 7 | -1.3 | -2.3 |
| Stroke | ≥ 65 | 356 | -0.9 | -5.3 |

National Heart, Lung, and Blood Institute

# After the JAMA Publication: American Heart Association Stays with JNC 7

- The American Heart Association and the American College of Cardiology released four cardiovascular treatment guidelines for healthcare providers in November, and next year they will be updating their high blood pressure guidelines as well. The new report that was published in JAMA… will be taken into consideration for those guidelines, which will be the national standard for treating hypertension.

  Until then, the AHA/ACC recognize the most recent hypertension guidelines, published in 2004 by the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, as the national standard.

# What will resolve the controversy ?

"More data"

Jackson Wright

# Thank You (Incomplete List) - Although What I Say May Not Reflect Their Views

Jackson Wright

Daniel Lackland

Gbenga Ogedeghe

Cheryl Dennison

Michael Mussolino

Joni Snyder

Paul Sorlie

Stefano Masini

Other Member of the JNC 8 Panel

Authors of the articles that I cited